

Sarajevo University. Care for patients at the Neurology Clinic of Clinical Center Sarajevo is partly of secondary, and partly on tertiary level of health care. Tertiary level of care is for the patients from 4 Cantons.

**Goal:** To provide a review of the population suffering from multiple sclerosis treated during 2006 at the Neurology Clinic of Clinical Center of Sarajevo University from the aspect of gender differences, age, type of disease, average duration of hospitalization, precipitating factors for the disease or relapsing, and noticed mental disturbances. Particular emphasis is given to the treatment with immune system modulators.

**Participants, Materials/Methods:** In this study we used a specially designed questionnaire, and history of illness of patients who were diagnosed as multiple sclerosis, treated at the Neurology Clinic from January 1st – December 31st 2006.

**Results:** The number of patients with MS was 71 (61.87% of female gender) aged from 40–49 years (43.66%). The average lifetime with respect to the onset of the first symptoms was  $33.01 \pm 8.3$  years. Hospital stay lasted on average of 19.5 days. Precipitating factor in 29.57% of cases with deterioration or disease is the infection and in 16.9% the stress. 26.76% of patients had a RR type of illness. Therapy with interferon was in 4.48% of patients. Therapy with high doses of metilprednisolone received 66.7% of patients. Depression disorder was present in 32.9% of patients, and cognitive dysfunction in 9.86%. The average EDSS score was 4.5. Relapsing rate was 4.63 per patient.

**Conclusions:** Based on our research we can conclude that the overall mortality of clinical patients, MS was responsible for 2.84% of all treated. Average patient's age was 33.01 years with a statistically significant more frequent disease in female population. Average EDSS was 4.5, relapsing rate 4.63, the possibility for immune modulating therapy 4.48%. In the next period is imperative to create a unified register of patients in order to conduct their treatment according to therapeutic guidelines.

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### Differential down-regulation of soluble adhesion molecules during Natalizumab treatment

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**Introduction/Objectives:** Natalizumab (Tysabri) is a monoclonal antibody used in the treatment of multiple sclerosis (MS). This humanized antibody binds directly at the alpha 4-integrin subunit of the adhesion molecule (AM) very late activation antigen-4 (VLA-4) and thus leads to an inhibition of immune cell extravasation across the blood brain barrier. This consecutively results in a reduced inflammation of the central nervous system. Our objective was to study the effect of Natalizumab on soluble cell AMs in peripheral blood of patients before and 3 months after onset of Natalizumab treatment.

**Participants, Materials/Methods:** We determined serum concentration levels of four different AMs (soluble intercellular adhesion molecule-1, -2, -3 [sICAM-1, -2, -3] and vascular cell adhesion molecule-1 [sVCAM-1]) by using fluorescent bead immunoassay and enzyme linked immunosorbent assay (ELISA). Blood was sampled from 15 MS patients before and 3 months after onset of Natalizumab treatment.

**Results:** A significant decrease was found in all patients for the median of sICAM-3 serum concentration levels (before therapy: 100 ng/ml; after 3 months: 61 ng/ml;  $P < 0.001$ ) and sVCAM-1

(before therapy: 580 ng/ml; after 3 months: 216 ng/ml;  $P < 0.001$ ) levels 3 months after onset of Natalizumab treatment. In contrast, serum levels of soluble ICAM-1 (before therapy: 452 ng/ml; after 3 months: 479 ng/ml) and ICAM-2 (before therapy: 263 U/ml; after 3 months: 242 U/ml) remained unchanged.

**Conclusions:** We were able to show a differential effect after 3 months of natalizumab treatment with decreased serum levels in all investigated MS patients in two of the four investigated AMs (sICAM-3 and sVCAM-1).

VCAM-1 is the ligand of VLA-4. We therefore conclude that the decrease of sVCAM-1 might be a result of natalizumab mediated blocking of VLA-4. Alternatively, the decrease of sVCAM-1 in conjunction with the decrease of sICAM-3 might also be due to the anti-inflammatory effects of Natalizumab.

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### Epidemiology of multiple sclerosis in Tuzla canton, Bosnia and Herzegovina

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**Objective:** To determine the incidence and prevalence of multiple sclerosis in the Tuzla canton, Bosnia and Herzegovina.

**Patients and methods:** The area of the Tuzla canton is 2649 km<sup>2</sup> and consists of 13 municipalities. After the war (1992–1995), there was no population census in Bosnia and Herzegovina. According to the report from Institute for statistics of federation Bosnia and Herzegovina in 2005, the Tuzla canton had an estimated population of 502 862 residents. Our Department of Neurology is the only one capable to diagnose and treat people suffering from multiple sclerosis in the canton. We have calculated the incidence and prevalence of Multiple sclerosis by analysing existing medical documentation (history of illness and hospital protocols).

**Results:** In the Tuzla canton total number of people suffering from Multiple Sclerosis (on 31.12.2008.) is 140, average age of 40.37 years ( $\pm$  SD 10.65). Average age of patients was 34.69 ( $\pm$  SD 10.54) years when the illness was diagnosed. The youngest patient was 12 year old, and the oldest 73 years. Diseases were twice more frequent in women than in men (94; 67.1%/46; 32.9%). The prevalence was 27.84 patients per 100 000 population. The average incidence for the 10-year period (1999–2009) was 2.38/100 000. The lowest incidence was 0.59/100 000 population (1999), and the highest 4.78/100 000 population (2007).

**Conclusion:** The results show that the Tuzla canton belong to the area with a middle prevalence of multiple sclerosis (upper limit). Moreover, the incidence of illness has the tendency to increase in the last ten years.

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### Brain white matter abnormalities in patients with Myotonic dystrophy type 1: is this multiple sclerosis?

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**Introduction/Objectives:** Myotonic dystrophy type 1 (DM1) is an autosomal dominant multisystemic disorder that affects skeletal and smooth muscle as well as the eye, heart, endocrine system, and central

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